**Uniform Motion Calculations**

**Distance/displacement calculations**

1. Ms. Harrison-Weiss jogs from her house for 2 block east before having to stop to catch her breath. She then continues jogging in the same direction for another 1 block before stopping for a Frappuccino as a reward for her hard work. She slowly saunters back home sipping her drink.
   1. What is her total distance?
   2. What is her final displacement?
2. You borrow your parents’ car without asking to meet your friends one town over at the local disco. After boogying the night away, you cleverly drive home in reverse to subtract the mileage from the odometer. Or so you think!
   1. For this to work, what value must the odometer record, distance or displacement?
   2. What value does the odometer actually record?

**Velocity/speed calculations**

1. A student saw a spider walking along a meter stick. When the spider crossed the 15 cm mark, the student started a stopwatch. When the spider reached the 60 cm mark, the student stopped the stopwatch. It took the spider 84 s. Calculate the average velocity of the spider in m/s.
2. A person walks 8.5 km, in 2.2 h. What was the person’s average speed?
3. A small plane flies 84 km from Nanaimo to Victoria. The average speed of the plane when flying is 280 km/hr. Determine the plane’s flying time.
4. Sunlight takes about 500 s to reach Earth. Light travels at 3.0 x 108 m/s. How far is the Sun from the Earth?
5. The driver of a car travelling at 50 km/hr sees a deer crossing the road ahead. It takes the driver 1.2 s to react and start to apply the brakes. How far did the car travel before the driver hit the brakes?
6. You walk 5 m [S] in 3 s, 6 m [E] in 15 s, 2 m [W] in 2 s, 4 m [N] in 5 s, 4 m [W] in 60 s, and 1 m [N] in 2 s. What is your average speed? Your average velocity?

**Period/Frequency calculations**

1. Miley Cyrus comes in like a wrecking ball 4 times in 15s.
   1. What is her frequency?
   2. What is the period of her cycle?
2. You listen to a song from beginning to end 16 times over the course of 57 minutes without pause (because it’s just that darn good).
   1. What’s the period of your listening cycle?
   2. How long is the song?
3. At a basketball game, the cheerleaders get the crowd “doing the wave” at a frequency of 0.25 Hz for 4 minutes.
   1. What is the period of the wave?
   2. How many waves does the crowd complete?